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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,727	10/17/2003	Jun-Sung Lee	45600	8271

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EXAMINER	
CHOU, ALBERT T	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/686,727	LEE ET AL.	
	Examiner	Art Unit	
	Albert T. Chou	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-14 and 17* is/are allowed.

6)☒ Claim(s) *15,16 and 18-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 October 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,678,249 to Toskala et al. (hereinafter "Toskala").

Regarding claim 15, Toskala teaches a method **[Figs. 2-3]** of transmitting a response field indicating normal or erroneous reception of uplink packet data received from a user equipment (UE) **[Fig. 3; Mobile Station 310]** in a handover region in each of Node Bs **[Fig. 3; Active Set 380]** that commonly cover the UE in a mobile communication system **[Fig. 3; Communication System 300]** supporting an enhanced uplink dedicated transport channel (EUDCH) service, the each of Node Bs the response field, the method comprising the steps of:

determining whether the uplink packet data is initially transmitted or retransmitted **[Fig. 2, steps 170-180; Fig. 3, Means for Receiving Packets 425, New Packet 460 or Retransmitted Packet 451]**;

checking errors in the uplink packet data if the uplink packet data is initially transmitted **[Fig. 2, steps 170-180; Fig. 3; Means for Checking Block # of Rec'd Packet 434]**, and checking errors after combining the uplink packet data with previous uplink packet data if the uplink packet data is retransmitted **[Fig. 2, steps 180-190; Fig. 3, Means for Combining Rec'd Packet with Previously Rec'd Packet 452 with an input from a Retransmitted Packet 451]**; and

transmitting the uplink packet data and an error check result to a radio network controller (RNC) connected to the Node Bs **[Fig. 2, steps 130-150, sent to a Radio Network Controller, col. 7, lines 3-8; Fig. 3, Means for Sending ACK/NACK 430]** and deciding the value of the response field and transmitting the decided response field to UE **[Fig. 2 steps 130-160; Fig. 3, Means for Sending ACK/NACK 430]**.

Regarding claim 18, Toskala teaches a transmitting apparatus **[Fig. 3; Base Station 350]** for transmitting a response field indicating normal or erroneous reception of uplink packet data from a user equipment (UE) **[Fig. 3; Mobile Station 310]** in a handover region in each of active Node Bs **[Fig. 3; Active Set 380]**, the UE retransmitting the uplink packet data according to the value of the response field, in a mobile communication system **[Fig. 3; Communication System 300]** supporting an enhanced uplink dedicated transport channel (EUDCH) service, comprising:

a memory controller **[Fig. 3; Means for Receiving Packets 425]** for applying to a memory **[Fig. 3; Soft Buffer 440]** an uplink control signal indicating whether the uplink packet data is initially transmitted or retransmitted **[Fig. 3; Means for Receiving**

Packets 425, New Packet 460 or Retransmitted Packet 451] and controlling the memory to soft-combine the uplink packet data with previous uplink packet data if the uplink packet data is retransmitted **[Fig. 3; Means for Combining Rec'd Packet with Previously Rec'd Packet 452 with an input from a Retransmitted Packet 451]**;

the memory for performing the soft combining under the control of the memory controller **[Fig. 3; Means for Receiving Packets 425, Means for Combining Rec'd Packet with Previously Rec'd Packet 452, Soft Buffer 440]**; and

an error detector **[Fig. 3; Means for Checking for Correct Reception 426]** for checking errors in the uplink packet data and generating the response field according to the error check result **[Fig. 3; Means for Sending ACK/NACK 430]**.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 16 is rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Pub. No. US 2004/0116143 A1 by Love et al. (hereinafter "Love").

Regarding claim 16, Love teaches a method **[Figs. 1-3]** of transmitting a response field indicating normal or erroneous reception of uplink packet data transmitted from a user equipment (UE) **[Figs. 1-3; MS 114 or 1114]** in a handover region in a radio network controller (RNC) **[Figs. 1-3; RNC 110 or 1010]** connected to Node Bs **[Figs. 1-3; BSS 101-107/BTS 201-207 or 301-307]** that commonly cover the UE in a mobile communication system supporting an enhanced uplink dedicated transport channel (EUDCH) service, the RNC transmitting the response field, the method comprising the steps of:

receiving the uplink packet data from the Node Bs **[Figs. 1-3; RNC 110 receives radio frames along with related frame quality information form BTS 201, 203, 204; par. 0012]**, determining whether good uplink packet data is among the received packet data **[Figs. 1-3; RNC 110 selects a best frame; par. 0012]**, and checking for errors after combining the received packet data if there is no good uplink packet data **[Figs. 1-3; Hybrid Automatic Repeat Request H-ARQ & AMC for error checking/correction; pars. 0013-0018]**;

deciding the value of the response field according to the error check result and transmitting the response field to the Node Bs **[Figs. 1-3; RNC 110 generates control channel information to each BTS 201, 203, 204; par. 0012]**; and

transmitting the uplink packet data to a higher-layer network after correcting the errors of the uplink packet data **[Figs. 1-3; RNC 110 transmits the uplink packet data to an external network via Gateway 112 or 1012; par. 0008]**.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Pub. No. US 2004/0116143 A1 by Love et al. (hereinafter "Love"), in view of US Patent No. 6,678,249 to Toskala et al. (hereinafter "Toskala").

Regarding claims 19 and 20, Love teaches a transmitting apparatus **[Figs. 1-2; RNC 110]** for transmitting a response field indicating normal or erroneous reception of uplink packet data transmitted from a user equipment (UE) **[Figs. 1-2; MS 114]** in a handover region in a radio network controller (RNC) **[Figs. 1-2; RNC 110]** connected to active Node Bs **[Figs. 1-2; BSS 101-107/BTS 201-207]** that commonly cover the UE in the handover region **[Fig. 1; Sector b of Cell 1, Sector c of Cell 3 and Sector a of Cell 4; par. 0009]**, the UE retransmitting the uplink packet data according to the value of the response field, in a mobile communication system supporting an enhanced uplink dedicated transport channel (EUDCH) service **[Figs. 1-2; EUDCH; par. 0044]**, comprising:

a Node B response field detector **[Fig. 2; ARQ 210 & Soft Handoff 214]** for detecting response fields indicating normal or erroneous reception of the uplink packet data in the Node Bs **[Figs. 1-2; ARQ RNC 110 receives radio frames along with related frame quality information form BTS 201, 203, 204, and selects a best frame based on frame quality/error information; par. 0012]**. Love further teaches the transmitting apparatus has adapted techniques such as Hybrid Automatic Repeat Request H-ARQ and Adaptive Modulation Coding AMC for error checking and correction to increase user throughputs **[pars. 0013-0018]**.

Love does not expressly teach the transmitting apparatus comprising: a combiner for combining the uplink packet data received from the Node Bs and checking errors in the combined uplink packet data, wherein the combiner performs space diversity-combining on the received uplink packet data; and an error detector for checking errors in the uplink packet data and generating the response field according to the error check result.

Toskala teaches a Code Division Multiple Access CDMA system 300 in which a Mobile Station 310 is operating in a packet-witched mode in communication with Base Stations 350, 360, 370, which are part of an active set **[Fig. 3, col. 7, lines 9-14].** Toskala teaches Base Station 350 comprising:

a combiner for combining the uplink packet data **[Fig. 3; Means for Receiving Packets 425, Means for Combing Rec'd Packet with Previously Rec'd Packet 452 , Soft Buffer 440]** and checking errors in the combined uplink packet data **[Fig. 3; Means for Checking for Correct Reception 426 with an input from Soft Buffer 440]**,

wherein the combiner performs space diversity-combining on the received uplink packet data **[Fig. 3, a Code Division Multiple Access CDMA system which provides space diversity uplink data; col. 7, lines 9-14]**; and

an error detector for checking errors in the uplink packet data **[Fig. 3; Means for Checking for Correct Reception 426]** and generating the response field according to the error check result **[Fig. 3; Means for Sending ACK/NACK 430]**.

Although the disclosed combiner for combining the uplink packet data and the error detector for checking errors in the uplink packet data are implemented in Base Station 350 in order to provide a distributed architecture wireless communication system, it would have been obvious to a person of ordinary skill in the art at the time of invention to recognize that functionalities of combing the uplink packet data and checking errors in the uplink packet can also be implemented in a centrally located Radio Network Controller RNC as disclosed in Love **[Figs. 1-2]**.

The motivation for combining the reference teachings would be to follow the current CDMA2000 and WCDMA system standards and implementation in which the reverse link ARQ functions, i.e. the combining, error checking and retransmission functions, etc., and a scheduling function reside in RNC, such as RNC 110 **[Love; par. 0018]**.

Allowable Subject Matter

4. Claims 1-14 and 17 are allowed.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent No. 6,694,469 to Jalali et al. disclose "Method And Apparatus For A Quick Retransmission Of Signals In A Communication System"
- US Patent No. 6,996,763 to Sarkar et al. disclose "Operation Of A Forward Link Acknowledgement Channel For The Reverse Link Data"
- US Patent No. 6,678,523 to Ghosh et al. disclose "Closed Loop Method For Reverse Link Soft Handoff Hybrid Automatic Repeat Request"
- US Patent No. 6,842,445 to Ahmavaara et al. disclose "Retransmission Method With Soft Combining In A Telecommunications System"
- US Patent No. 6,704,898 to Furuskar et al. disclose "Combined Hybrid Automatic Retransmission Request Scheme"
- US Patent Application Pub. No. 2006/0198377 A1 by Kubota discloses "Mobile Communication System, Mobile Terminal, Base Station, Radio Network Controller, Retransmission Control Method Used Therein, And

Recording Medium Having Program For Carrying Out The Method Recorded Thereon"

- US Patent No. 7,027,420 to Hamalainen discloses "Method For Determining Whether To Perform Link Adaptation In WCDMA Communications"

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert T. Chou whose telephone number is 571-272-6045. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Albert T. Chou
June 11, 2007 AC

CHI PHAM
SUPERVISORY PATENT EXAMINER 6/18/07